

ABSTRACT OF THE DISCLOSURE

5 An electronic, programmable filter is disclosed which selectively removes interference, noise or distortion components from a frequency band without perturbing any of the other signals of the band. An input frequency band such as a television channel spectrum is initially demodulated to baseband and applied to the input of the filter. The baseband spectrum is combined in a complex mixer with a synthesized frequency signal that shifts the spectrum a characteristic amount, in the frequency domain, so as to position an interference component in the region about DC. Once shifted, the frequency components about DC are removed by DC canceler circuit and the resulting spectrum is mixed with a subsequent synthesized frequency signal which shifts the spectrum back to its original representation and baseband. The frequency signals are developed by a programmable frequency synthesizer which a user may program with an intelligence signal that defines the frequency location of an interference signal within the spectrum. Filter blocks may be added or subtracted in order to optimize the filter response for any number of interference components for which rejection is desired.

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